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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/057,143

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Fabio Casati

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EXAMINER

DESHPANDE, KALYAN K

ART UNIT

PAPER NUMBER

3623

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/057,143

Applicant(s)

CASATI ET AL.

Examiner

Kalyan K. Deshpande

Art Unit

3623

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1448 or PTO-889)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Introduction

1. The following is a final office action in response to the communications received on November 23, 2007. Claims 15-26 are now pending in this application.

Response to Amendments

2. Applicants' amendments to claims 15-23 is acknowledged. New claim 26 is acknowledged.

Response to Arguments

3. Applicants' arguments filed on November 23, 2007 have been fully considered but are not found persuasive. Applicants' argue i) the term "selectively" as recited in claims 21-22 are fully enabled by the disclosure (see Remarks page 5), ii) Casati fails to teach "predicting exceptions before the exception occurs and performing an action during execution of the workflow to avoid occurrence of the exception in the workflow" when "the probability exceeds a threshold" as per claims 15 and 23 (see Remarks page 6), and iii) Casati teaches away from "predicting exception" (see Remarks page 7).

In response to Applicants' argument the term "selectively" as recited in claims 21-22 are fully enabled by the disclosure (see Remarks page 5), Examiner respectfully disagrees. As discussed in the previously submitted rejection, claims 21-22 recite the step of "selectively removing input data". The original disclosure is silent as to how a user would perform this step. There is nothing in the Specification or the originally submitted claims that suggest what criteria or manner a user would use to determine which data to remove. Applicants point to page 14, 16 and figure 4 in support of this

feature, but Examiner finds no disclosure as to how a user selectively determines to remove input data. These sections of the Specification describe generating classification rules, but are silent as to how a user decides which data to remove to refine the classification rules. As such, this feature is not enabled and is properly rejected under 35 U.S.C. 112 1st paragraph.

In response to Applicants' argument Casati fails to teach "predicting exceptions before the exception occurs and performing an action during execution of the workflow to avoid occurrence of the exception in the workflow" when "the probability exceeds a threshold" as per claims 15 and 23 (see Remarks page 6), Examiner respectfully disagrees. Applicants' specifically argue that Casati deals with handling exceptions after they have occurred whereas the present invention deals with predicting exceptions before they occur. Examiner submits that handling exceptions after the occur requires knowledge of the exception and the possibility of occurrence before the exception occurs. It is clear from Casati that certain exceptions are known and the process of handling these exceptions is determined prior to execution of the workflow (see Casati pp. 418-419; where specific objects and modules are implemented to handle certain exceptions prior to their occurrence.). Thus, although Casati focuses on handling exceptions after their occurrence, Casati also deals with predicting the occurrence of exceptions and mapping processes to handle the exception. By handling the exception, Casati is effectively avoiding the exception. Applicants' also argue that Casati has nothing to do with performing an action after a threshold has been crossed. Examiner respectfully submits that the use of conditions and triggers taught by Casati (see Casati

pp. 415 and 418) is the same as a threshold since a particular parameter must be present in order to evaluate the expressions as true in both terms. As addressed in claim 15, the generation of an exception model is the same as determining thresholds which when crossed are exceptions as recited in claim 23.

In response to Applicants' argument Casati teaches away from "predicting exception" (see Remarks page 7), Examiner respectfully disagrees. Applicants' specifically argue that Casati "repeatedly states that exceptions cannot be predicted" (see Remarks page 7). Examiner has carefully reviewed Casati and has not found anything in Casati to suggest that exceptions cannot be predicted. Applicants' specifically cite to passages on pages 406 and 411, however, Examiner notes that these passages are taken out of context. Casati explains in the passage on page 406 that expected exceptions are unpredictable as to when or where in the workflow they will occur. This does not teach away that the fact that expected exceptions, as the name suggests, will occur and workflow processes can be implemented to handle these exceptions. On page 411, after Casati states that "such situations...are asynchronous", Casati further explains that workflow management systems need to consider such situations and be designed to handle the typical exceptions. This suggests that typical exceptions are predictable so much so that the workflow systems are designed to account for these predicted exceptions. As such, Casati specifically teaches towards predicting exceptions will occur and suggests methods to handle the occurrence of these exceptions.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 21-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 21 recites the feature of "selectively removing input data to refine the classification rules". The scope of this limitation, as defined by the Specification, fails to guide a user on how to "selectively" decide whether to remove a data value or not. As such, claim 21 is not enabling.

Claim 22 recites the same subject matter as claim 21 and is rejected for the same reasons discussed above.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 15-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Casati et al. (Casati, Fabio; Ceri, Stefano; Paraboschi, Stefano; Pozzi, Giuseppe;

"Specification and Implementation of Exceptions in Workflow Management Systems", *ACM Transaction on Database Systems*, September 1999) (*previously cited and provided*).

As per claim 15, Casati teaches "a method for predicting exceptions in a workflow instance comprising: the steps of: preparing data from past workflow executions" (see pp. 424 and 447; where data from previously executed workflows is used in modeling workflow behavior.), "generating at least one exception prediction model based on the prepared data" (see pp. 424 and 447; where the implementation of an exception prediction model derived from previously executed workflows is done.), "using the exception prediction model to generate at least one prediction of an exception before the exception occurs for a current instance of the workflow instance" (see pp. 406-408 and 419-424; where predictions of exceptions are done before their occurrence thereby enabling the handling of that exception.), and "performing an action during execution of the workflow instance to avoid occurrence of the exception in the workflow instance" (see pp. 417-420; where examples of actions that are performed in order to avoid an exception are described. The system has predefined reactions to the triggering of an exception. An exception class enables the system to react to conditions during workflow execution such that an exception can be avoided.).

As per claim 16, Casati teaches:

The method of claim 15 wherein the exception prediction includes the steps of:

Building a process analysis table for a process definition of interest (see Figures 1 and 2; where a process analysis table for specific processes are defined.);

Adding labeling information to the process analysis table (see Figures 1 and 2; where the tables are labeled.);

Generating classification rules by employing data mining techniques (see pp. 406-407, 419-424 and 438-440; where classification rules are created by using historical data.).

As per claim 17, Casati teaches:

The method of claim 15 wherein classification rules are generated for each stage in a process and are stored in a repository (see pp. 406-407 and 419-424; where the rules are stored in a repository.).

As per claim 18, Casati teaches:

The method of claim 17 wherein at least one classification rule set generated for a process execution stage is executed to make predictions on at least one running process instance (see pp. 406-407 and 419-424; where the rules are run against running process instances.).

As per claim 19, Casati teaches:

The method of claim 18 wherein at least one prediction is stored in the repository includes the exception being predicted and an indication of an accuracy of the prediction (see pp. 419-424 and 433-434; where the predicted rules are being stored in the repository and there is a level of accuracy associated with them.).

As per claim 20, Casati teaches:

The method of claim 15 wherein the at least one prediction is reported to a workflow management system (WfMS) so that the WfMS alters execution of the

processes to try to avoid the exception (see pp. 406-407 and 419-424; where the occurrence of an exception is reported and the process definition is altered to account for the predicted exception.).

As per claim 21, Casati teaches:

Reporting classification rules to a user (see p. 424; where the classification rules are in a table accessible to the user. This is the same as reporting the rules to the user.);

Selectively removing input data to refine the classification rules (see p. 424; where rules are adjusted based on execution of the workflow.);

Re-generating the classification rules by employing data mining techniques (see pp. 406-407, 419-424 and 438-440; where classification rules are adjusted based on logged workflow executions.)

As per claim 22, Casati teaches:

The method of claim 21 wherein when the classification rules are satisfactory to the user, storing the classification rules in a database (see pp. 406-407, 419-428 and 438-440; where the classification rules can be stored in a relational database.).

Claims 23-25 recite limitations already addressed by the rejections of claims 15-22; therefore the same rejections apply to these claims. Examiner notes that the steps of "generating prediction rules" and determining a "threshold" recited in claim 23 are the same as the modeling of the exception prediction, since a model includes rules and conditions with thresholds.

As per claim 26, Casati teaches:

The method of claim 15 further comprising, refining the at least one prediction as process execution of the workflow instance proceeds (see p. 424; where rules are adjusted based on execution of the workflow. Adjustment of the rules is the same as adjusting the exception prediction since the rules are defined as exception conditions.).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following are pertinent to the current invention, though not relied upon:

Borgida et al. (Borgida, Alex; Murata, Takahiro; "Tolerating Exceptions in Workflows: a Unified Framework for Data and Processes", International Conference on Work activities Coordination and Collaboration Proceedings of the international joint conference on Work activities coordination and collaboration, 1999) teaches predicting workflow exceptions and creating an exception handling class to executing prior to the occurrence of an exception.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalyan K. Deshpande whose telephone number is (571)272-5880. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kkd

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/Scott L. Jarrett/

Primary Examiner, Art Unit 3623